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PATENT

REQUEST FOR RECONSIDERATION
EXPEDITED PROCEDURE EXAMINING GROUP 1700

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Katsumi SUZUKI et al.

Group Art Unit: 1742

Serial No.: 10/009,309

Examiner: Deborah Yee

Filed: January 2, 2002

For: NON-AUSTEMPER TREATED SPHEROIDAL GRAPHITE CAST IRON

REQUEST FOR RECONSIDERATION

MAIL STOP AF
Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Applicants request reconsideration of the rejections in the Final Rejection mailed August 4, 2003 in view of the following remarks.

The rejection of claims 1 to 10 under 35 USC 103 as unpatentable over Oguri et al. '751 or Ishihara JP '245, both newly cited, is respectfully traversed.

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Applicants respectfully submit that the subject matter in Oguri et al '271 neither teaches or suggests the present invention. More particularly, Oguri et al. '751 requires molybdenum to be present, a component excluded from the cast iron of the instant claims. The patent at column 3, lines 37 to 43 contains an explanation of why molybdenum is necessary. Moreover, the present invention is directed to an improvement over prior art compositions where molybdenum, an expensive metal, was used; see the discussion in the specification of prior art drawbacks, particularly the discussion in the paragraph bridging pages 1 and 2 and page 3, lines 15 to 19. Oguri et al. '751 requires specifically molybdenum to be present. Applicants' claims do not; there is no overlap.

Moreover, there is no recognition nor awareness in the Oguri et al. '271 disclosure that controlling the quantities of Ni and Mn would improve the tensile strength and elongation of the cast iron without subjecting the cast iron to an austemper treatment. See the discussion in the specification at page 7, lines 2 to 18 and the paragraph bridging pages 10 and 11. The rejection should be withdrawn.

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Applicants also respectfully traverse the rejection of all claims under 35 USC 103 based upon Ishihara JP '245.

The Examiner is informed that JP '245 is one of the references forming the basis for priority under 35 USC 119 of US 4,889,687, of record but not applied in this case. Applicants direct the Examiner's attention to that U.S. patent to aid her assessment of the following remarks.

Figs. 2 and 3 of the '687 patent correspond to Figs. 2 and 3 respectively of JP '245. Embodiment 1 discussed below corresponds to Example 1 of JP '245 and was chosen for discussion here because the article is one as cast with no further heat treatment and the shape of the specimen was Y block; see column 4 and the results reported therein in Sections (2) and (3).

The following table is presented to demonstrate the patentable and unexpected advantages achieved by the present invention as compared to the JP '245 showing.

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| Component (%) | Present claim | Present Example 1 | Comparative Example 1 of Present application | Embodiment 1 Invention (3) on Columns 3 to 4 |
|------------------------|------------------------|-------------------|--|--|
| C | 3.1 to 4.0 | 3.55 | 3.55 | 3.72 |
| Si | 1.8 to 3.0 | 2.5 | 2.5 | 2.16 |
| Mn | 0.05 to 0.45 | 0.29 | 0.53 | 0.17 |
| Ni | 2.0 to 4.0 | 3.1 | 3.1 | 1.98 |
| P | 0.05 or less | 0.018 | 0.018 | 0.029 |
| S | 0.02 or less | 0.007 | 0.007 | Not described in Table*** |
| Mg | 0.02 to 0.06 | 0.039 | 0.039 | 0.038 |
| Cr* | Not present | 0.036 | 0.036 | 0.03 |
| Cu* | Not present | 0.08 | 0.08 | Not specified |
| Mechanical properties | | | | |
| Tensile Strength (MPa) | 650 to 850 | 820 | 850 to 900 | 580 |
| Proof stress (MPa) | Not claimed in Claim 1 | 500 | NA** | 390 |
| Elongation (%) | 7 to 14.5 | 10 | 6 or less | 11 |

Remarks:

*: Those metal elements are present as an avoidable impurity.

** : NA stands for "not available" since the no determination was carried out.

***: In Claim, S is not included, in addition to no description in Table on Page 3, Upper Left Column of the JP '245.

A review of that table shows that the iron made in accordance with the present invention has an excellent tensile strength while retaining elongation within a preferable range. Applicants are able to do so by balancing the nickel and manganese contents within the ranges indicated in the claims. (This point was raised above in the discussion of Oguri et al. '751.) The Examiner will note also that the use of less than 2.0% nickel as in Example 1 of JP

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'245 (Embodiment 1) gives a tensile strength below that recited in the present claims. Those values establish the criticality of operating within the limits of the present invention. The rejection should be withdrawn.

The Examiner is requested to telephone the undersigned should anything further be required in the case prior to allowance.

Respectfully submitted,

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Date

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